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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/650,493	08/28/2003	Lukas Doerrer	1406/163	6981
25297	7590	07/12/2004	EXAMINER	
JENKINS & WILSON, PA 3100 TOWER BLVD SUITE 1400 DURHAM, NC 27707			YOUNG, BRIAN K	
			ART UNIT	PAPER NUMBER
			2819	

DATE MAILED: 07/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/650,493

Applicant(s)

DOERRER ET AL.

Examiner

Brian Young

Art Unit

2819

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 August 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7-11 is/are allowed.
- 6) ☒ Claim(s) 1 is/are rejected.
- 7) ☒ Claim(s) 2-6 and 12-18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claim 1 is rejected under 35 U.S.C. 102(a) as being anticipated by Morche

Morche discloses a method for compensating the non-linearity of a sigma-delta analog-to-digital converter (A2) with quantization at N levels comprising a digital-to-analog converter (24). The method comprises a calibrating step which consists in transforming the multibit sigma-delta analog-to-digital converter (A2) into a sigma-delta analog-to-digital converter with quantization at three levels, then at two levels. The correction values of each level to be corrected are accurately measured. The method also comprises a normal functioning phase which consists, when the sigma-delta analog-to-digital converter (A2) is operating with quantization at N levels, in producing an instantaneous correction of errors of the analog-to-digital converter (24) using said correction values. The method in the invention of compensating non-linearity includes a calibration phase during which the multibit sigma-delta analog-to-digital converter is converted into a sigma-delta analog-to-digital converter with three quantizing levels  $X_{sub.m}$ ,  $X_{sub.M}$  and  $X_{sub.i}$ , where i is from 1 to N-2; during a period  $P1_{sub.i}$ , a predetermined value is delivered to the input of the sigma-delta analog-to-digital converter and the values from the output of the sigma-delta analog-to-digital converter are processed digitally; this calibration phase is executed N-2 times, retaining the levels  $X_{sub.m}$  and  $X_{sub.M}$ , and taking successively for the level  $X_{sub.i}$  the N-2 levels other than the levels  $X_{sub.m}$  and  $X_{sub.M}$ . The correction values  $C_i$  of the N-2 levels other than  $X_{sub.m}$  and  $X_{sub.M}$  are advantageously calculated using the processed values, the N-2 correction values  $C_{sub.i}$  being adapted to modify the N-2 levels other than  $X_{sub.m}$  and  $X_{sub.M}$  during the normal operation phase.

3. Claims 7-11 are allowed.

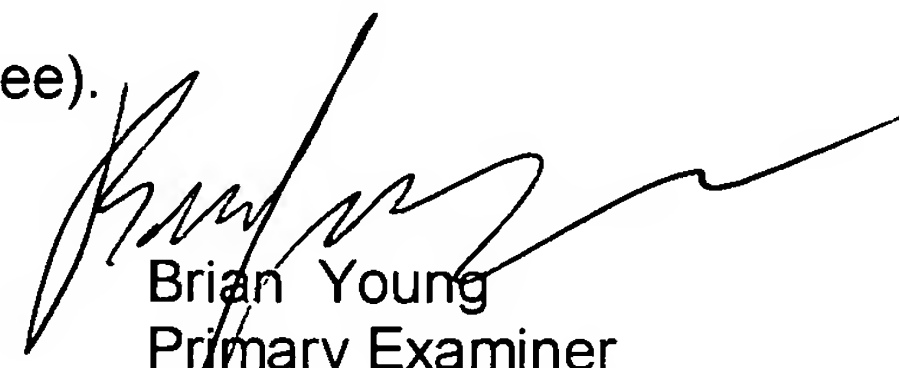
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4. Claims 2-6 and 12-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Young whose telephone number is 571-272-1816. The examiner can normally be reached on Mon-Fri 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Tokar can be reached on 571-272-1812. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Brian Young  
Primary Examiner  
Art Unit 2819

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